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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,633

09/25/2006

Steinar Bjornstad

OSL-038

6061

3897

7590

07/06/2011

SCHNECK & SCHNECK

P.O. BOX 2-E

SAN JOSE, CA 95109-0005

EXAMINER

AGA, SORI A

ART UNIT

PAPER NUMBER

2476

MAIL DATE

DELIVERY MODE

07/06/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/586,633	BJORNSTAD, STEINAR	
	<b>Examiner</b>	<b>Art Unit</b>	
	SORI AGA	2476	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 22-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22,25-31 and 34-39 is/are rejected.
- 7) ☒ Claim(s) 23,24,32 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/23/2011 has been entered.
2. Claims 1-21 are cancelled. New claims 22-39 are added. Claims 22-39 are now pending.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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5. Claims 22, 27-31, and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al.(US PG-PUB 2004/0151171 A1) (herein after Lee) in view of Rychlicki (US PG-PUB 2003/0020982 A1) (herein after Rychlicki).

***Regarding claim 22,*** Lee teaches an optical switch for use in an asynchronous, wavelength-division-multiplexing, fiber-optic communication network, wherein the optical switch comprises: at least one fiber-optic input; at least one fiber-optic output; and a buffer unit comprising a plurality of queues, wherein the optical switch is arranged to: receive data packets at the fiber-optic input; assign a received data packet, having an associated destination, to one of the queues; determine the number of vacant output wavelengths for the destination; and schedule the data packet from the queue [see **fig. 2 and paragraph 0037** where a large capacity optical router including an optical switch is showing having N input ports 1 to N (a plurality of fiber optic inputs); and N output ports (a plurality of fiber optic outputs); where the inputs and outputs are shown as wavelength-lambda (fiber optic). See also paragraph 0038 lines 1-6 where the input/outputs are shown as WDM (wavelength division multiplexed); See figure 2 and paragraph 0060 lines 19-24 where an a large capacity optical router including an optical switch is shown and where a determination is made to determine whether an available wavelength channel (at least one) exists and if there is no available wavelength channel, the data frame waits in the buffer; see also paragraph 0041 where a buffer and the queues are shown].

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However, Lee does not explicitly teach (scheduling when) only when at least a minimum number, greater than one, of output wavelengths for the destination are vacant. However, Rychlicki teaches determining and waiting until a number of wavelengths are available (i.e more than one) [see paragraphs 0163 and 0164]. It would have been obvious for a person having ordinary skill in the art to schedule only when at least a minimum number, greater than one, of output wavelengths for the destination are vacant in order to provide a communication that does not limit the speed or bit rate of the communication (see paragraph 0015).

**Regarding claim 27**, Lee teaches the optical switch of claim 22, further adapted to operate within a network selected from the group consisting of: an optical packet switched network; an optical burst switched network; an electronic packet switched network; an electronic burst switched network; and a wavelength-division-multiplexed network [See also paragraph 0038 lines 1-6 where the input/outputs are shown as **WDM (wavelength division multiplexed)**]. *(note that the list within the group are claimed alternatively and therefore a showing of one of the elements meets the requirements of the claim).*

**Regarding claim 28**, Lee teaches the optical switch of claim 22, wherein the buffer unit comprises an electronic buffer and is configured to buffer data packets electronically [see paragraph 0019 line 6 where the buffer is shown to be an electronic buffer].

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*Regarding claim 29*, Lee teaches the optical switch of claim 22, configured to receive wavelength-division- multiplexed signals at the fibre-optic input [See also **paragraph 0038 lines 1-6 where the input are shown as WDM (wavelength division multiplexed)**].

*Regarding claim 30*, Lee teaches the optical switch of claim 22, configured to send wavelength-division- multiplexed signals from the fibre-optic output [See also **paragraph 0038 lines 1-6 where the outputs are shown as WDM (wavelength division multiplexed)**].

*Regarding claim 31*, Lee teaches a method of switching data in an asynchronous, wavelength-division- multiplexing, fiber-optic communication network, comprising: receiving data packets at a fiber-optic input of an optical switch; assigning a received data packet, having an associated destination, to one of a plurality of queues in a buffer unit determining the number of vacant output wavelengths from the optical switch for the destination; and scheduling the data packet from the queue [see **fig. 2 and paragraph 0037 where a large capacity optical router including an optical switch is showing having N input ports 1 to N (a plurality of fiber optic inputs); and N output ports (a plurality of fiber optic outputs); where the inputs and outputs are shown as wavelength-lambda (fiber optic). See also paragraph 0038 lines 1-6 where the input/outputs are shown as WDM (wavelength division multiplexed); See figure 2 and paragraph 0060 lines 19-24 where an a large capacity optical router including**

**an optical switch is shown and where a determination is made to determine whether an available wavelength channel (at least one) exists and if there is no available wavelength channel, the data frame waits in the buffer; see also paragraph 0041 where a buffer and the queues are shown].**

However, Lee does not explicitly teach (scheduling when) only when at least a minimum number, greater than one, of output wavelengths for the destination are vacant. However, Rychlicki teaches determining and waiting until a number of wavelengths are available (i.e more than one) [see paragraphs 0163 and 0164]. It would have been obvious for a person having ordinary skill in the art to schedule only when at least a minimum number, greater than one, of output wavelengths for the destination are vacant in order to provide a communication that does not limit the speed or bit rate of the communication (see paragraph 0015).

***Regarding claim 36***, Lee teaches the method of claim 31, wherein the network is a network selected from the group consisting of: an optical packet switched network; an optical burst switched network; an electronic packet switched network; an electronic burst switched network; and a wavelength-division-multiplexed network [**See also paragraph 0038 lines 1-6 where the input/outputs are shown as WDM (wavelength division multiplexed)**]. *(note that the list within the group are claimed alternatively and therefore a showing of one of the elements meets the requirements of the claim).*

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*Regarding claim 37*, Lee teaches the method of claim 31, wherein the buffer unit comprises an electronic buffer, the method further comprising buffering data packets electronically in the buffer unit [see **paragraph 0019 line 6 where the buffer is shown to be an electronic buffer**].

*Regarding claim 38*, Lee teaches the method of claim 31, further comprising receiving wavelength-division- multiplexed signals at the fibre-optic input [See **also paragraph 0038 lines 1-6 where the input are shown as WDM (wavelength division multiplexed)**].

*Regarding claim 39*, Lee teaches the method of claim 31, further comprising sending wavelength-division- multiplexed signals from the fibre-optic output [See **also paragraph 0038 lines 1-6 where the outputs are shown as WDM (wavelength division multiplexed)**].

6. Claims 25 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee and Rychlicki as applied to claims 22, 27-31, and 36-39 above, and further in view of Shiimoto (US PG PUB 20030128981 A1) (herein after Shiimoto).

*Regarding claim 25*, Lee teaches the optical switch of claim 22 as discussed above. However, Lee does not explicitly teach buffering only a fraction of the data packets passing through the optical switch. However, Shiimoto teaches transferring some optical data without converting them to electrical signal (i.e. without having to use the electrical



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buffers claimed in Lee) [see **paragraph 0426**]. It would have been obvious for a person having ordinary skill in the art to buffer only a fraction of the data packets passing through the optical switch. This is desirable because it provides for performing burst data transfer at high efficiency (see paragraph 0019).

*Regarding claim 34*, Lee teaches the method of claim 31 as discussed above. However, Lee does not explicitly teach buffering only a fraction of the data packets passing through the optical switch. However, Shiimoto teaches transferring some optical data without converting them to electrical signal (i.e. without having to use the electrical buffers claimed in Lee) [see **paragraph 0426**]. It would have been obvious for a person having ordinary skill in the art to buffer only a fraction of the data packets passing through the optical switch. This is desirable because it provides for performing burst data transfer at high efficiency (see paragraph 0019).

7. Claims 26 and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee and Rychlicki as applied to claims 22, 27-31, and 36-39 above, and further in view of LoCascio et al. (US PG PUB (US 20020196497 A1) (herein after LoCascio)).

*Regarding claim 26*, Lee teaches the optical switch of claim 22 as discussed above. However, Lee does not explicitly teach a plurality of fiber-optic inputs and at least one fiber-optic output which operates at a higher bit-rate than the plurality of fiber-optic inputs. However, LoCascio teaches one fiber-optic output which operates at a higher bit-rate than the plurality of fiber-optic inputs [see **paragraph 0025**]. It would have been

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obvious for a person having ordinary skill in the art to have one fiber-optic output which operates at a higher bit-rate than the plurality of fiber- optic inputs. This is desirable because it allows to combine and fit bits of multiple input into an output (see paragraph 0025).

***Regarding claim 35***, Lee teaches the method of claim 31 as discussed above. However, Lee does not explicitly teach a plurality of fiber-optic inputs and at least one fiber-optic output which operates at a higher bit-rate than the plurality of fiber- optic inputs. However, LoCascio teaches one fiber-optic output which operates at a higher bit-rate than the plurality of fiber- optic inputs [see **paragraph 0025**]. It would have been obvious for a person having ordinary skill in the art to have one fiber-optic output which operates at a higher bit-rate than the plurality of fiber- optic inputs. This is desirable because it allows to combine and fit bits of multiple input into an output (see paragraph 0025).

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 22-39 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SORI AGA whose telephone number is (571)270-1868. The examiner can normally be reached on M-F 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on (571)272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sori A Aga/  
Examiner, Art Unit 2476

/Salman Ahmed/  
Primary Examiner, Art Unit 2476